CLAIMS

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is as follows:

1. A method for providing a supply schedule, comprising the steps of:

dividing a priority ranked release schedule into "N" separate release schedules, where "N" represents a number of divisions of the priority ranked release schedule;

sorting the "N" separate release schedules in a priority order based on an original priority ordering of the priority ranked release schedule; and

allocating available component supply based on the priority in the "N" separate release schedules,

wherein the allocating step provides a supply schedule of material releases of product by rationing of the available component supply in each of the "N" separate release schedules.

2. The method of claim 1, wherein:

the "N" separate release schedule groups the releases into smaller groups than the priority ranked release schedule; and

the priority ranked release schedule is based on at least one requirement for the material releases of an assembly and sequentially computing an implied requirement for the available component supply.

3. The method of claim 1, wherein the dividing step includes dividing the priority ranked release schedule at any level of a supply chain.

4. The method of claim 1, wherein the rationing of the available component supply is further based on business rules.

5. The method of claim 4, wherein the business rules matches assets with requirements such that the material releases of equal priority in each of the "N" separate release schedules are allocated in accordance with the available component supply in proportion to relative size subject to supply and capacity availability.

6. The method of claim 4, wherein the business rule matches assets with requirements such that the material releases in each of the "N" separate release schedules are constrained to a size as determined by limited available component supply.

7. The method of claim 1, wherein:

the sorting step further modifies the priority ranked release schedule such that priority of the material releases at a particular level in the "N" separate release schedules dynamically allocates and rations limited component supply and capacity among the material releases; and

the allocation step further allocates finite component supply to the material releases in each of the "N" separate release schedules such that a quantity of each material release is constrained by an availability of the limited component supply.

8. The method of claim 7, wherein a remaining unscheduled portion of the material releases are rescheduled in advance or at a later time period.

9. The method of claim 1, wherein the allocation step further allocates finite capacity to the material releases in each of the "N" separate release schedules such that the material releases are limited to a size and number of possible releases according to limiting capacity resources, wherein the resources include assembly capacity.

10. The method of claim 1, further comprising the step of considering global information for rationing of the available component supply in each of the "N" separate release schedules in order to determine an optimal delay for the scheduled material releases, wherein the global information includes (i) the priority ranked release schedule including a list of the material releases indexed by part number (PN), location, process type and time period, (ii) quantity of each component required per piece of finished assembly for each PN, (iii) supply of the each component being shipped between locations indexed by locations and time period, (iv) transit time to ship the each component between locations indexed by locations, (v) capacity available indexed by capacity type, location and time period, and (vi) capacity required of each capacity type for each type of material release indexed by location, process and time period.

11. A method of optimizing a supply schedule, comprising the steps of:

dividing each of a priority ranked scheduled release into "N" separate and smaller sized schedule releases, where the priority of each of the "N" schedule releases is equal to a priority of an original release of the priority ranked scheduled release;

sorting the "N" separate and smaller sized schedule releases based on the original priority ordering and an additional level of priority ordering such that subsequent resource allocation is consistent with rationing of resources; and

allocating the resources and component supplies to satisfy a scheduled release associated with the "N" separate and smaller sized schedule releases such that the assembly capacities and component supplies are rationed to maximize an output of

product in accordance with the priority ranked scheduled release.

12. The method of claim 11, wherein the scheduled release is subject to (i) capacity and component supply constraints not being violated, (ii) a maximum possible release at a next level given the capacity and component supply constraints and (iii) limited resources allocated to equal priority releases in proportion to size.

13. The method of claim 11, wherein the allocating step allocates the assembly capacities and component supplies according to availability determined by user supplied input including transit/shipping times, capacity requirements and capacity availability from current locations.

14. The method of claim 13, wherein the allocating step includes:

attempting to first allocate component supply and capacity resources at a specified release date subject to constraints on the resources and component supplies; and

rationing at least one of the resources and component supplies in proportion to release size if insufficient at least one of the resources and component supplies are available.

15. The method of claim 11, wherein:

the dividing step is applied at predetermined levels of the priority ranked scheduled release;

the allocating step includes determining availability of the component supplies to determine availability first in a current period, next in earlier periods, and then in later periods, wherein the availability is computed based on current location and user supplied transit times between locations.

16. The method of claim 15, wherein:

the component supplies with a least component supply availability is found in order to determine a maximum release of the product in a predetermined time period;

scanning through all capacity types and time periods allocating the assembly capacities over time according to the capacity required and subject to availability until sufficient capacity is allocated according to the component supplies; and

reducing a remaining release of the product left to a new schedule based on the capacity required and subject to component availability.

17. The method of claim 16, wherein the scanning step includes the steps of:

computing the capacity required for a maximum release for the given time period and the resource;

computing the capacity available for the given time period and the resource; and

scheduling the maximum release of product if the available capacity is greater than the required capacity.

18. A system of optimizing a supply schedule, comprising:

means for dividing each of a priority ranked scheduled release into "N" separate and smaller sized schedule releases, where the priority of each of the "N" schedule releases is equal to a priority of an original release of the priority ranked scheduled release;

means for sorting the "N" separate and smaller sized schedule releases based on the original priority ordering and an additional level of priority ordering such that subsequent resource allocation is consistent with rationing of resources; and

means for allocating the resources and component supplies to satisfy a scheduled release associated with the "N" separate and smaller sized schedule releases such that the assembly capacities and component supplies are rationed to maximize an output of product in accordance with the priority ranked scheduled release.

19. The system of claim 18, further comprising means for grouping the "N" separate release schedule into smaller groups than the priority ranked release schedule.

20. The system of claim 18, wherein:

the means for sorting further modifies the priority ranked release schedule such that priority of the material releases at a particular level in the "N" separate release schedules dynamically allocates and rations limited component supply and capacity among the material releases; and

the means for allocating further allocates finite component supply to the material releases in each of the "N" separate release schedules such that a quantity of each material release is constrained by an availability of the limited component supply.

21. The system of claim 18, further comprising means for considering global information for rationing of the available component supply in each of the "N" separate release schedules in order to determine an optimal delay for the scheduled material releases, wherein the global information includes (i) the priority ranked release schedule including a list of the material releases indexed by part number (PN), location, process type and time period, (ii) quantity of each component required per piece of finished assembly for each PN, (iii) supply of the each component being shipped between locations indexed by locations and time period, (iv) transit time to ship the each component between locations indexed by locations, (v) capacity available indexed by capacity type, location and time period, and (vi) capacity required of each capacity type for each type of material release indexed by location, process and time period.

22. A system for optimizing a supply schedule, comprising the steps of:

means for dividing each of a priority ranked scheduled release into "N" separate and smaller sized schedule releases, where the priority of each of the "N" schedule releases

is equal to a priority of an original release of the priority ranked scheduled release;

means for sorting the "N" separate and smaller sized schedule releases based on the original priority ordering and an additional level of priority ordering such that subsequent resource allocation is consistent with rationing of resources; and

means for allocating the resources and component supplies to satisfy a scheduled release associated with the "N" separate and smaller sized schedule releases such that the assembly capacities and component supplies are rationed to maximize an output of product in accordance with the priority ranked scheduled release.

23. A machine readable medium containing code for providing a supply schedule, comprising the steps of:

dividing a priority ranked release schedule into "N" separate release schedules, where "N" represents a number of divisions of the priority ranked release schedule;

sorting the "N" separate release schedules in a priority order based on an original priority ordering of the priority ranked release schedule; and

allocating available component supply based on the priority in the "N" separate release schedules,

wherein the allocating step provides a supply schedule of material releases of product by rationing of the available component supply in each of the "N" separate release schedules.